ARMY GROUND RISK-MANAGEMENT INFORMATION

Countermeasure

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Spotlight on Bradley

Countermeasure

ARMY GROUND RISK-MANAGEMENT INFORMATION

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DASAF'S CORNER

From the Director of Army Safety

Remembering Heroes and Keeping Future Ones Safe

Traditionally, we associate the month of May with the unofficial onset of summer's fast-paced activities. We also designate in May a time to pause and reflect on the enduring legacy of our armed forces: their service and sacrifice. Appropriately on Memorial Day each year, we remember those great Americans who have died in battle to preserve for us a heritage of individual freedom and opportunity.

The courage, patriotism, and personal sacrifice of our fallen heroes have made it possible for freedom to be preserved. And we have each in the course of our own service to this nation seen evidence that freedom can never be taken for granted, nor is it ever easily preserved.

As we reflect with pride and gratitude on those members of our armed services who have made the supreme sacrifice in preserving our liberty, we are also extremely conscious of today's continued uncertain and dangerous world. Preserving that freedom for future generations of Americans requires that each of us who wear the uniform renew our commitment and personal resolve to ensure that we, too, are always ready to heed our Nation's call.

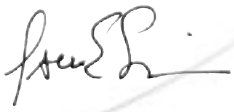
While there is none who could doubt that we are today the greatest Army ever fielded, we must not forget that our readiness can be easily degraded by needless losses that result from accidents. Accidental losses of personnel and equipment can and do take a tremendous toll on our resources and seriously impact our combat readiness.

I urge each of you to be exceptionally vigilant in managing risks on and off duty as we head into the summer months. Traditionally, the summer season is characterized by a surge in accidents and injuries—especially heat, traffic, and water-related injuries. So let's use extra caution and exhibit responsible behavior in all that we do.

Not just on one special day in May, but often, we owe it to our fallen comrades to pause and appreciate their tremendous sacrifices. And we owe it to our families, our units, and our friends to slow down the off-duty activities we may jump into now that the harsh winter months are over. We should carefully identify the hazards and put controls in place that will prevent injuries. The consequences of failing to do so can be tragic.

Our Army needs each of us—America's current and future heroes—healthy and whole to help execute our Nation's mission of preserving freedom for our future generations.

Train Hard, Be Safe!
BG James E. Simmons



BRADLEY
Safety Performance Review

MARY ANN THOMPSON
Operations Research and System Analysis Research Psychologist
U.S. Army Safety Center

The Bradley Fighting Vehicle (BFV) is an important part of the Army's tracked vehicle fleet. It is used for a variety of missions and is valuable to our combat readiness. Accidents involving the BFV not only result in personnel loss, injury, and equipment damage, they also threaten our ability to accomplish our mission. Because of that, it is important to learn how to *avoid* having these types of accidents. We can learn from our previous accidents and the circumstances surrounding them and use that knowledge in the future to avoid repeating these accidents.

From Fiscal Year 1998 to 10 March 2003,* there have been 64 Class A through C Army Combat Vehicle accidents involving M2 and M3 BFVs. These accidents have resulted in 5 Army military fatalities and 54 non-fatal (at least 1 workday lost) injuries, costing the Army $5.9 million. As can be seen by Figure 1, most of these were Class C accidents. It's important to examine these accidents, as well as the more severe ones, to learn lessons for the future because even Class C accidents hurt our readiness by injuring personnel and damaging equipment.

Most of these accidents occurred during the day (67 percent). The remainder occurred at night, and the majority of these involved soldiers using night vision devices (NVDs). Bradley Fighting Vehicle accidents occurred most often in off-road terrain (64 percent); however, 11 percent occurred on improved roads and 17 percent on tank or vehicle trails. Twenty percent occurred at combat training centers as crews participated in tactical training or during rotational exercises. A review of the 64 BFV accidents identified seven major problem areas that accounted for the majority these accidents. Although some accidents involved more than one of these problems, the discussion of these problems will focus on only one area.

Rough or Uneven Terrain (31 percent)

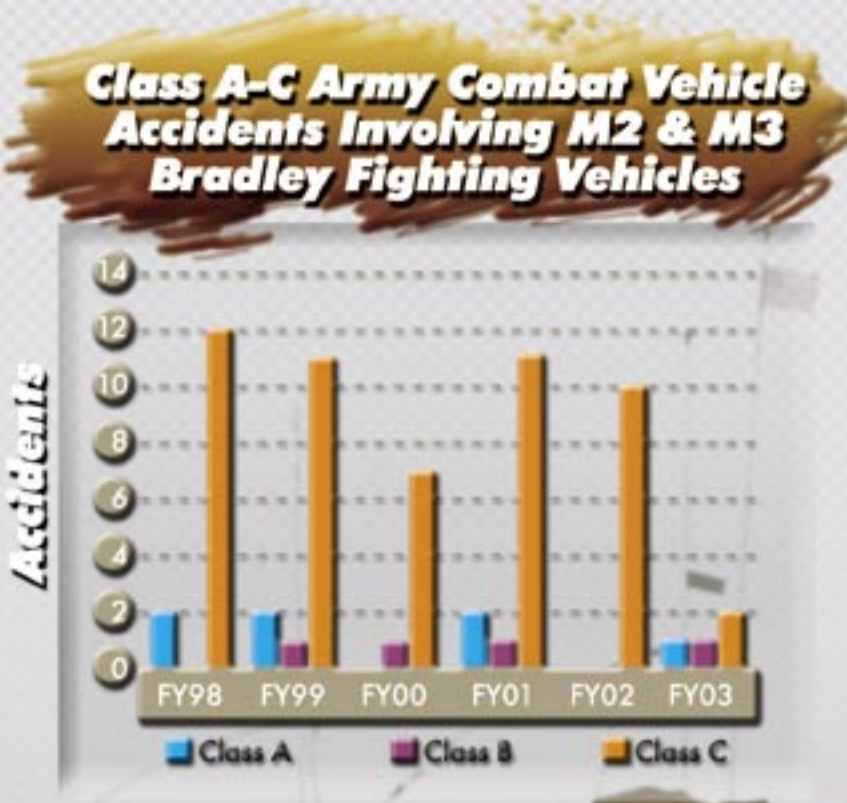
Rough terrain obviously involves driving over areas with bumps, holes, rises, and drop-offs. Although the BFV is designed to operate in rough terrain, there are certain precautions that must be taken to avoid injuries and property damage. When these precautions are not taken, accidents can result. Most of these accidents fell into the following areas:

• Personnel position—personnel not in correct position or not braced for possible terrain hazards. Examples include soldiers in the turret above nametag defilade, not using their seatbelts, or not bracing themselves to avoid striking the vehicle or equipment inside.

• Speed too fast for terrain—operators traveling too fast to detect and safely negotiate uneven terrain.

• Undetectable hazards—hazards that were not visible because of high grass or vegetation. Since vegetation can obscure uneven terrain, it is important that all personnel onboard take precautions and be prepared for the unexpected.

Knowledge of the operating area (map reconnaissance), maintaining safe maneuver speeds, scanning for hazards, proper crew position, and bracing for hazards when operating on uneven terrain are vital to avoiding these types of accidents.



Hatches (14 percent)

Hatch accidents are a problem for all

tracked vehicles, and the BFV is no exception. At times it is necessary to operate the BFV with one or more hatches open. When this happens, it is critical that the hatches are secured properly. If it they're not, vehicle movement can, and often does, cause them to spring forward and injure anyone in their path. Eight BFV crew members learned this lesson the hard way. Improperly secured or unsecured hatches resulted in them suffering concussions, fractures, sprains or strains, lacerations, and abrasions. These injuries easily could have been prevented by following proper hatch-securing procedures.

Limited Visibility (14 percent)

Limited visibility increases the risk of accidents for the BFV, just as it does for you when you operate your privately owned vehicle (POV). It is sometimes necessary for the BFV to operate under conditions that limit visibility. Unlike your POV, NVDs are used to help operate the BFV safely in low-light conditions. These devices have limitations and precautions for their safe use and they are aids, not cure-alls. Bradley crews still should avoid using NVDs near exterior light sources, drive more slowly, and constantly use effective crew coordination when operating with NVDs.

Materiel (14 percent)

Fires were the most frequent materiel issue involved in these BFV accidents. There were eight BFV fires, with most beginning in the engine compartment. Although the cause is unknown on some of these fires, the most common causes were electrical shorts or sparks, or oil or fuel lines breaking or leaking and causing fluid to come into contact with hot engine components. These fires most often were detected by the crew members, who then successfully evacuated the vehicle.

Clearance-Inside and Outside the Vehicle (9 percent)

The BFV is very large and has a lot of moving parts in very close quarters. This means that it is important to clear the outside around the vehicle before moving. It is also important that you know the location of all personnel within or near the vehicle before you begin certain vehicle operations:

- **External clearance.** Although the BFV is maneuverable, you need to make sure you have enough room around the vehicle for safe operations. Failing to do that led to two of our BFV accidents.
- **Turret and ramp clearance.** Space is at a premium inside a BFV, and it is not possible for all of the crew members to see each other. Therefore, it is critical that crew members communicate with each other and make sure everyone is clear before conducting certain vehicle operations. For example, turret and ramp operations have resulted in personnel injuries. In one accident, the driver asked for a "clear." When no one answered, the driver raised the back ramp, not realizing there was a passenger sitting on it. In another accident, a soldier was attempting to climb on top of a BFV from the side rather than from in front of the driver's hatch, as directed in the standard operating procedures. He didn't get clearance or communicate with the crew first. The Bradley Commander saw the soldier and directed him to "go to the back." The gunner was not aware of the soldier attempting to mount the vehicle. When he heard the order to "go to the back," the gunner thought the Bradley Commander wanted the turret traversed to the rear. When the gunner traversed the turret, the leg of the soldier who was climbing onto the BFV became wedged behind the driver's hatch.

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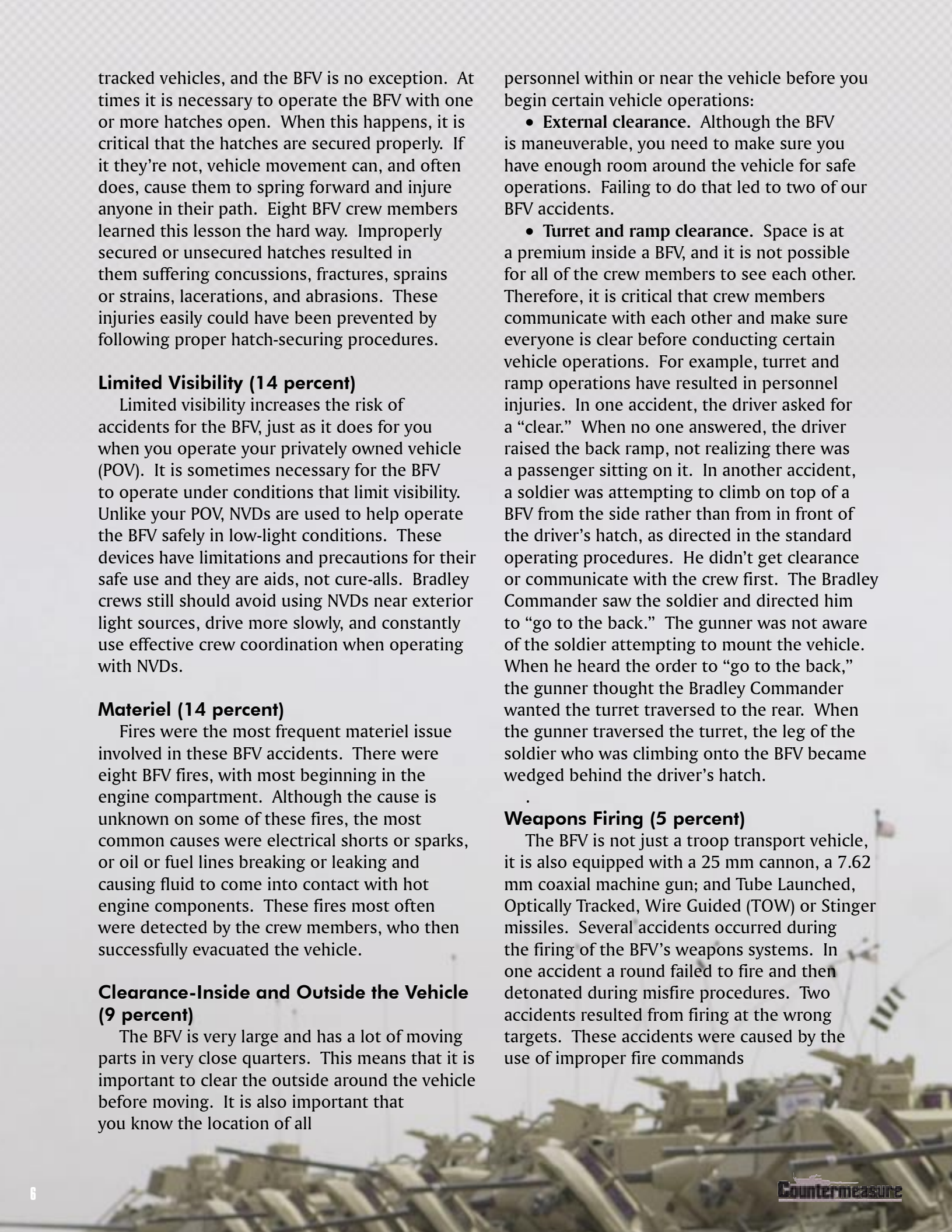
Weapons Firing (5 percent)

The BFV is not just a troop transport vehicle, it is also equipped with a 25 mm cannon, a 7.62 mm coaxial machine gun; and Tube Launched, Optically Tracked, Wire Guided (TOW) or Stinger missiles. Several accidents occurred during the firing of the BFV's weapons systems. In one accident a round failed to fire and then detonated during misfire procedures. Two accidents resulted from firing at the wrong targets. These accidents were caused by the use of improper fire commands



(deviating from standard crew fire commands) or firing outside of range limits.

Ground Guiding (5 percent)

Ground guiding is important for safely operating the BFV in confined or congested areas, just as it is for other large vehicles. When ground guiding is not performed to standard (no ground guide while backing, misjudging clearance while backing, or positioning the ground guide between two vehicles) it can lead to accidents and injuries.

Conclusion

Several common threads were evident in these BFV accidents:

- **Crew coordination.** Crewmembers must continually communicate and coordinate their actions. Failing to do that, or doing it poorly, contributed to a number of these BFV accidents. This problem is especially evident in turret operations and when crews operate in limited visibility. Everyone needs to know what the other crew members are doing and, if the vehicle is about to roll over, ensure everyone is warned in time to act appropriately.
- **Leadership.** Leaders must know, set, and enforce the standards. If the Bradley Commander or leader doesn't follow the standard or allows others to deviate from it, they have potentially set up their people and their vehicle for the next accident.
- **Rollovers.** Twelve of the BFV accidents involved vehicle rollovers. The best way to prevent a rollover is to avoid getting into a situation that might cause one. If a vehicle does begin to roll over, all crew members need to know the proper procedures to allow them to avoid or minimize their injuries. Bradley crews that execute proper rollover procedures can *walk* away from an accident instead of being *carried* away.

These accidents demonstrate the importance of integrating risk management into the planning and execution of each mission. They also point out the importance of crew coordination, performance to standard, and leadership during the mission to prevent needless losses of personnel and equipment. Soldiers and leaders are responsible for knowing their vehicle's characteristics, limitations, and safety procedures. They also are responsible for effectively communicating with their crew, especially when hazards are encountered.

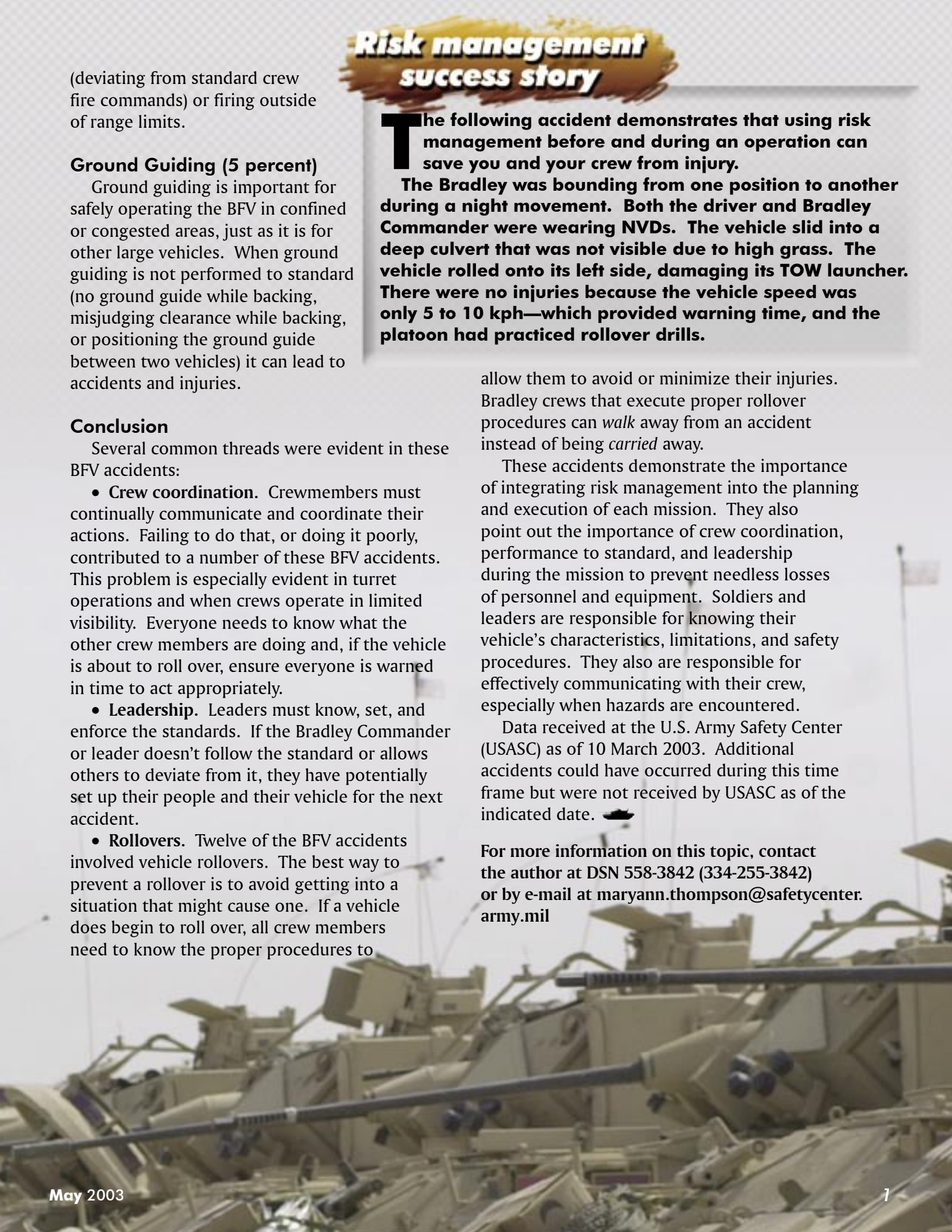
Data received at the U.S. Army Safety Center (USASC) as of 10 March 2003. Additional accidents could have occurred during this time frame but were not received by USASC as of the indicated date.

For more information on this topic, contact the author at DSN 558-3842 (334-255-3842) or by e-mail at maryann.thompson@safetycenter.army.mil

Risk management success story

The following accident demonstrates that using risk management before and during an operation can save you and your crew from injury.

The Bradley was bounding from one position to another during a night movement. Both the driver and Bradley Commander were wearing NVDs. The vehicle slid into a deep culvert that was not visible due to high grass. The vehicle rolled onto its left side, damaging its TOW launcher. There were no injuries because the vehicle speed was only 5 to 10 kph—which provided warning time, and the platoon had practiced rollover drills.



THE BRADLEY FIGHTING COMMITMENT TO SA

The Bradley Fighting Vehicle (BFV) was designed to provide the safest possible environment during training as well as wartime. The mechanisms that provide this safety, as outlined below, only work if they are used in the way they were intended. So use them and use them correctly. Don't allow yourself or your soldiers to be listed as a statistic in the Army's accident database.

Seatbelts

Thomas Flyer used one of the first seatbelts during a 1907 auto race to help keep his mechanic inside the car. It was proven back then that "riding in" is better than being "thrown from." The same is true of the BFV, which is why seatbelts are provided for every seat. Even so, they are one of the most misused safety items. Often, seatbelts will be rolled up and taped to present a neat appearance and keep the web straps off of the floor to minimize clutter. Seatbelts are designed to prevent soldiers from being thrown from the vehicle. In addition, seatbelts also protect soldiers from being thrown around violently inside the vehicle during unstable or abrupt vehicle movement.

Crew Member Passageway

The interior path adjacent to the turret and roadside walls is referred to as the crew member passageway. Crew members often use this area to stow personal equipment so it will be readily available when needed and dry when training in wet environments. What is sometimes overlooked is that this passageway provides an alternate route for exiting or entering the vehicle during emergencies if the most likely exit door or hatch is obstructed. Rather than blocking that passageway, waterproof your equipment so it can be stowed outside the vehicle. When tailoring your unit's load plan, keep the passageway free and clear of any obstructions.

Interior Lighting

The interior lighting system is designed to automatically turn off when the ramp is lowered or the troop ramp access door is opened. This is important because even small amounts of

VEHICLE'S AFETY

TERRY SMART
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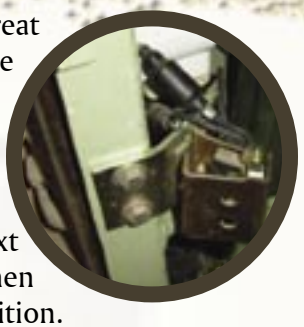
Office of the Project Manager



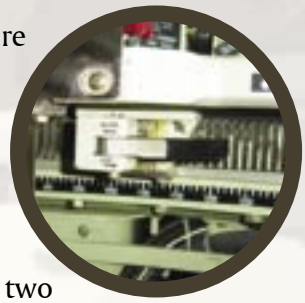
white light can be seen at great distances. The interior dome lights provide blackout lighting as well as normal white light. The dome light activator switch is located on the vehicle's rear wall next to the troop door handle when the ramp is in its closed position. This rocker-type switch turns off the interior lighting so as not to compromise your location during hours of darkness. This switch is, at times, taped down so the interior lighting will remain on while the troop door or vehicle ramp is opened. This will, however, hurt your ability to maintain light discipline during hours of limited visibility or darkness. Remove all tape, bands, or other holding devices from this switch and let it work as designed.

Combat Override System

The combat override system defeats the safety interlocks designed to provide safe zones for the crewmembers on the vehicle. When the override is in the OFF position, it prevents the BFV's weapons systems from being fired when the hatches are opened to selected positions. This is accomplished by vehicle electronics that declare predetermined turret locations as "no-fire zones." The turret door also has an interlock switch to

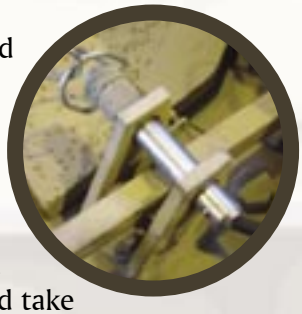
shut down the turret drive system when the door is opened. The combat override defeats this and should be used in combat only if one or more of the safety interlocks malfunction. The override switch cover is also safety wired to prevent any unintentional activation. In addition, there are warning lights mounted on the turret step that can be seen from the crew compartment. These lights will illuminate when the turret drive is in the ON position and will flash when the combat override system has been activated. If these lights are flashing, make sure the vehicle commander and all crewmembers know this system has been activated.

Turret Travel Lock



The turret has a safety feature that allows it to be locked in place during maintenance and vehicle transport, or while soldiers are entering or exiting through the turret doorway. This manually operated mechanism works by two sets of gear teeth interlocking together to serve as a positive stop. If the teeth aren't properly aligned, they will not fully engage in the locked position. If that should occur, slightly moving the turret should allow proper alignment. If you can't get the proper alignment, notify unit maintenance because the travel lock mechanism may need to be adjusted. Also, make sure that the turret travel lock is set to the LOCK position before entering or exiting through the turret doorway.

Vehicle Hatches



There are many documented cases of people being injured because they were hit by an unsecured vehicle hatch. This can lead to temporary or even permanent arm, leg, finger, or head injuries. Do yourself and your crew members a favor and take time to install the quick-release safety pins in the commander's and gunner's hatches. The driver's hatch has a locking latch built into the handle, unless you're operating one of the original, basic BFV versions. If that is the case, you may have to install a separate locking pin.

Fire Suppression Systems

The BFV also has its own fire suppression system that is designed to detect and extinguish flash fires. The fire suppression system releases Halon to quickly put out fires in the squad area. A two-position toggle switch located on the driver's instrument panel can be selected to either the AUTO or MANUAL mode. In the AUTO mode, sensors located throughout the squad area detect any fires and automatically discharge the fire bottles. In the MANUAL mode, Halon can be discharged by either of two handles. One handle is located outside the vehicle on the right-rear quarter panel. The other handle is located inside the vehicle on the rear-right bulkhead near the ramp. The engine compartment fire bottle is located under the driver's instrument panel. It is actuated manually by a handle located outside and near the driver's hatch or by a knob under the driver's instrument panel.

Many of you have heard that exposure to Halon or FM200 can be detrimental to crew members. Those stories are exaggerated. There may be some temporary irritation or even dizziness, but those effects are nothing compared to being burned by fire. If you have a vehicle fire, follow all procedures when extinguishing the fire and remain calm. Evacuate the vehicle immediately and account for all personnel.

In Conclusion

The safety features discussed in this article are only a few of what are offered on the BFV. All crew members are encouraged to read and understand the warnings and cautions in the operator's manuals and to familiarize themselves with crew drills and emergency procedures. Soldiers should not become complacent during their daily duties and not be aware of the potential dangers. Paying close attention to detail during every task is vital to successful and safe operations.

For more information on this topic, contact the author at DSN 786-7849 (586-574-7849) or by e-mail at smart@tacom.army.mil

Editor's Note: Mr. Smart has 20 years of experience with the BFV and has served in each crew position from driver to vehicle commander. He retired from the Army in 2000 and currently works for Technology Ventures Incorporated as a contract employee supporting PM Bradley.

Q&A

Q. Is there any Army or DoD guidance on the use of wireless phones (cellular phones) when operating motor vehicles on military installations or operating government owned or leased vehicles off military installations?

A. While the Army has no specific guidance on the use of these devices, DODI 6055.4, paragraph 6.7, recommends that you stop the vehicle before you use a cellular phone. However, at present it does not make it mandatory unless the state or nation in which the installation is located or in which the vehicle is operated prohibits the use of cellular phones (see DODI 6055.4 paragraph E3.5.1). There is, however, General Services Administration (GSA) guidance (see below), and several states and nations are considering legislation to ban the use of wireless phones while driving. The following "GSA to Feds: Don't Talk and Drive" was published in the June 2002 issue of *Countermeasure*.

"The General Services Administration told federal agencies to urge their employees not to talk on hand held wireless phones while driving vehicles owned or leased by the federal government. While GSA did not ban talking on hand held cellular phones while driving altogether, it recommended that agencies discourage the use of cellular phones by drivers of federal vehicles. As one solution, GSA recommended that agencies provide a hands-free car kit with government-owned wireless phones and educate employees on how to drive safely while using them."

In a bulletin published in the *Federal Register*, GSA said, "It is appropriate that the federal government assume a leadership role in promoting the safe use of wireless telephones by its employees when they are engaged in official government business,"

Legislation pending in 27 states would ban hand held wireless phones while driving. New York State already has approved such a ban. In general, federal employees are not exempt from state and local laws dealing with motor vehicles, and agencies should be aware of the potential for increased liability from accidents caused by the use of wireless hand held phones, according to GSA. The National Highway Traffic Safety Administration (NHTSA) has several studies underway of driver distractions such as cellular phone use. GSA plans to keep agencies informed on the findings and any changes in federal policy on cellular phone use, the bulletin said.

Q. Are there any Army directives or policies that prohibit the placement of speed bumps on Army installations? From an emergency response perspective, wouldn't placing speed bumps in the roadway increase the response times of fire and other emergency vehicles responding to incidents or accidents?

A. Army Regulation 420-72, *Transportation Infrastructure and Dams*, 1 June 2000, paragraph 2-17b, *Safety Hazards,* states: "Hazardous features such as transverse ridges, speed bumps, or dips on pavement surfaces will not be installed or maintained as a means of controlling or reducing the speed of traffic."

Q. What is the Army safety guidance document on lifting devices such as cranes, etc?

A. Technical Bulletin 43-0142, *Safety Inspection and Testing of Lifting Devices,* 28 February 1997, provides safety information on lifting devices such as cranes, hoists, slings, forklift trucks, jacks and stands. You can download a copy in PDF format from the U.S. Army Safety Center website http://safety.army.mil. Click on "Guidance," then "Safety," then "U.S. Army Regulations and Guidance," and then click on "TB 43-0142."

POC: Truman Taylor, Policy and Programs Division, U.S. Army Safety Center, DSN 558-2947, (334-255-2947) or by e-mail at truman.taylor@safetycenter.army.mil

Oh My Aching Dogs!

LTC JOSEPH MCKEON
Command Surgeon
US Army Safety Center

BOB VAN ELSBERG
Managing Editor
Countermeasure

I took off my boots and my feet felt like they were on fire. As I pulled off my socks, I saw a line of bleeding blisters running from my big toe to my ankle on top of both of my feet. I had been trying to break in a new pair of combat boots during the run from our barracks to our training site at Abernathy Park on Fort Bliss, Texas. As I looked at my feet, it was clear my boots were winning this contest. I was having a hard time even walking because I didn't know how to take care of my feet. (The Editor)

You were born with a pair of feet, so what's the big deal, anyway? Well, if you can't walk, you can't soldier. Foot problems that develop early on during a forced march, field problem, or deployment that are not cared for in the early stages can hurt your ability to perform your mission. If you allow your feet to become injured or infected through blisters, ingrown toenails, or poor personal hygiene, you've become combat ineffective. You see, it doesn't necessarily take the enemy to take you out of the fight.

Through the years, I have learned some important tips on foot care from folks wearing "Brand X" (crossed rifles) on their shoulders. Since not all of us will get the experience of a rotation with the "light" infantry at a combat training center, let me share some of those tips with you.

Your Basic Transportation

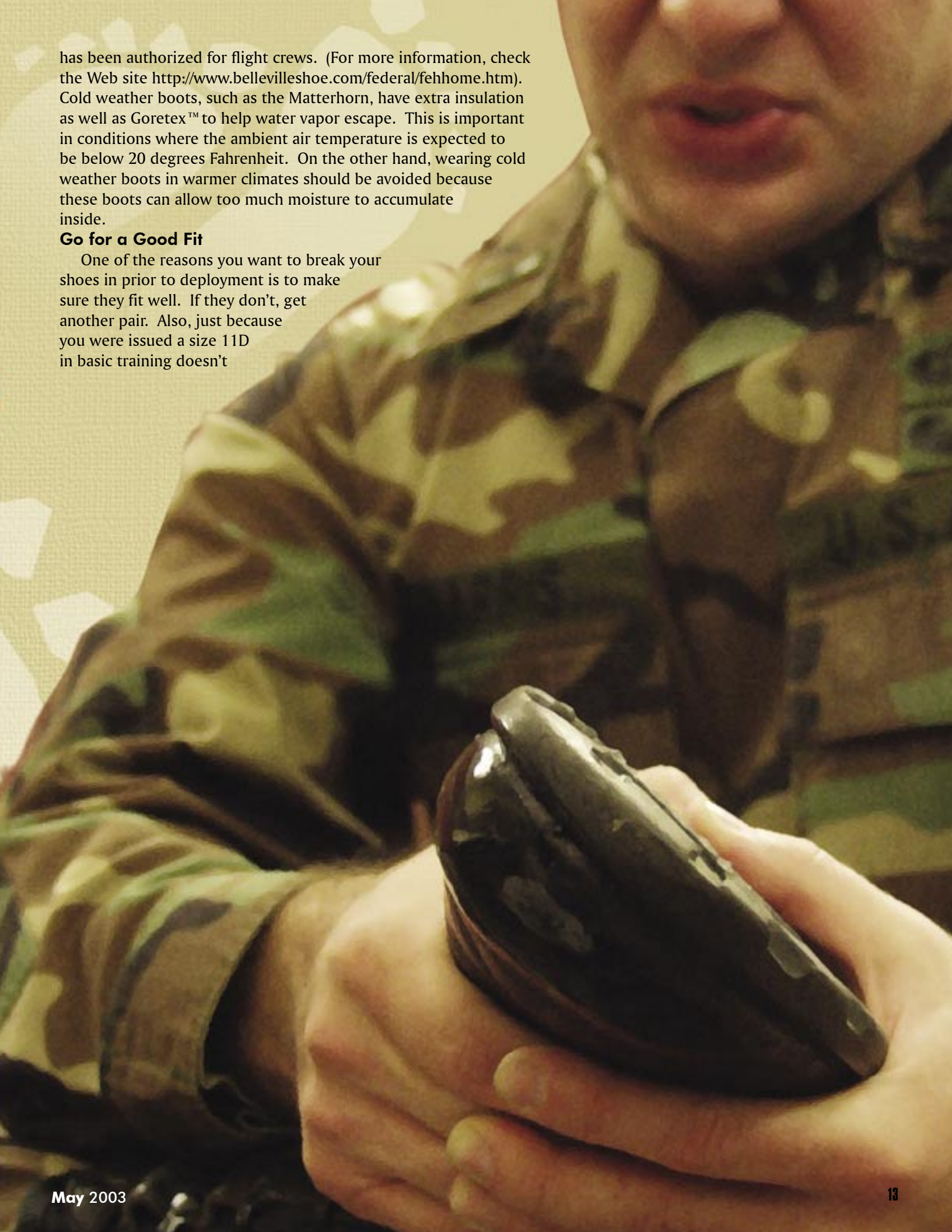
Two of the most important pieces of equipment you own are your "leather personnel carriers." It is critical before you go on a deployment that you have a pair of properly broken-in boots. You need to break them in gradually so they don't chafe your feet and cause blisters. Most experienced ground-pounders recommend walking at least 100 miles in a pair of new boots before going on an extended hike.

You also must ensure your boots are the proper ones for the conditions in which you will be operating. The boots you were issued are some of the best available for the money and are suitable for most uses. Nylon-walled jungle boots are good all-purpose footgear—they're excellent in hot climates and wet weather. Desert boots also are available and have special modifications to help keep sand out and enable the soles to provide better insulation against heat. Aviation personnel should remember that they are not authorized to wear the issue desert boots while conducting flight duties. Instead, they should wear the Belleville 790 desert boot, which

has been authorized for flight crews. (For more information, check the Web site http://www.bellevilleshoe.com/federal/fehhome.htm). Cold weather boots, such as the Matterhorn, have extra insulation as well as Goretex™ to help water vapor escape. This is important in conditions where the ambient air temperature is expected to be below 20 degrees Fahrenheit. On the other hand, wearing cold weather boots in warmer climates should be avoided because these boots can allow too much moisture to accumulate inside.

Go for a Good Fit

One of the reasons you want to break your shoes in prior to deployment is to make sure they fit well. If they don't, get another pair. Also, just because you were issued a size 11D in basic training doesn't



mean it will always be the right fit. Manufacturers change, as do sources of manufacture. And, believe it or not, your shoe size actually increases as you get older. Your feet tend to spread as the arch flattens and you lose the fatty pads that cushion your soles. Along with that, changes in tendons, bones, and muscles decrease the elasticity and resilience of your feet, and gaining weight adds stress. Don't ignore the issue of your boot size—get it right! Your boots should fit securely around the ankle and instep without pinching, rubbing, or cutting off circulation.

One way to test the fit of your boots is to walk down an incline. Your feet should not slide forward, nor should your toenails rub against the inside of the boot. If your foot slides forward, the boot could be too wide. If the back of your heel moves around, your boots could be the wrong size or might not be laced tightly enough.

Another useful test is to leave the boot unlaced and slide your foot as far forward as possible inside the boot. You should be able to slide a pencil or pen down the back of the boot all the way to the bottom without being able to move it back and forth behind your heel. Wear the same socks you wear in the field when you try on a pair of boots. It's also a good idea to try on the boots later in the day, as gravity can make your feet swell by the afternoon.

"Sock" It to Your Feet

If you're like me, you've probably got socks that don't even vaguely resemble their original color and could have holes in the soles or heels. Believe me; they're not appropriate for field use. Socks are a critical item of clothing because they cushion and insulate your feet, reduce friction between your feet and boots, and move moisture away from your skin. Socks should be made of wool, not cotton, as the latter will absorb and retain water. The 100-percent cotton T-shirt you wear when you're playing basketball will allow your sweat to eventually evaporate as it is exposed to the air. However, cotton socks inside a boot greedily hold the 8 ounces of sweat that can be generated by each foot during a day's march. That's a cup of sweat in each boot! No wonder your legs feel so tired at the end of a forced march. Wool will wick moisture away from your feet and help keep them dry. While wearing an extra pair of woolen socks can squeeze the feet and decrease airflow and circulation, a thin inner sock make from polypropylene also can help wick water away from your feet. However, anyone exposed to fire hazards—such as aviation personnel and fuel handlers—should avoid wearing polypropylene next to their skin as a flash fire could melt the synthetic material and cause serious injuries.

It's not enough just to have the right kind of socks—you need to have plenty of them, too. You should change your socks at least twice a day in the field, more frequently if they get wet. This holds true in the winter as well. Cold injuries affecting the feet invariably are related to poor foot hygiene and dirty socks. Leaders must ensure that soldiers change their socks during cold weather.

A Little Basic Foot Care

Calluses and blisters are protective mechanisms and warn us that we're not wearing properly fitted footgear. Daily foot washing is the goal, but that's not always possible. When you can't wash your feet, rub them daily to remove dead skin and as much bacteria and debris as possible. Take special care to clean and dry between the toes. Trim your toenails to avoid pressure and bruising from constantly being pushed against the front of the boot or shoe. Cut the nails off bluntly with clippers or scissors. Avoid the urge to pick your toenails, as this often leads to an ingrown toenail. Blisters can be prevented by covering vulnerable areas with an adhesive bandage or "mole skin." Foot powder also works well to lessen friction. Apply foot powder liberally when doing those twice-per-day sock changes. Avoid cornstarch because it feeds fungus. Some authors even have recommended using duct tape as a field expedient measure. Massaging with petroleum jelly also can lessen friction.

Don't Break That Blister!

If blisters appear, DON'T break them—they are the one remaining barrier to protect the vulnerable underlying tissue from the environment. If a blister does break, try to keep the skin attached by using a Band-Aid™ or tape to secure it. Check the wound frequently for increased redness, swelling, or temperature, and seek medical care if it seems to be getting worse.

In Summary

Caring for your feet is one of the most important "operator-level" health checks you can perform. Take care of your feet and they will take care of you. Invest in your health and take care of your body. After all, where else are you going to live?

Do you have a medical question that you'd like to pose to Dr. McKeon and see the answer in the pages of this magazine? If so, send an e-mail to countermeasure@safetycenter.army.mil and put the words "Doc Talk" in the subject line. The answer to your question could not only help you, it could also help a lot of your fellow soldiers, so don't be afraid to ask. If you'd like to have your question published anonymously, just let us know when you send your e-mail.

Saved by the Belt

BOB VAN ELSBERG
Managing Editor

It was a winter exercise and Headquarters 8th Infantry Division had deployed to the little town of Kusel, Germany. I was assigned to do a story for the *Credentials* newspaper on the highway accidents occurring during the exercise. I'd seen a map dotted with little colored pins marking the vehicle accidents that had occurred. Several densely packed clusters suggested where the trouble spots were. I was sure I could find someone with firsthand experience at one of those locations.

After a long day visiting the likely accident spots, I headed back empty-handed to Kusel. Concerned about not having gotten my story, I wondered how I would complete my assignment. Little did I know the answer would come more quickly than I expected.

To get back to Kusel I had to drive through the village of Bad Kusel. There was a tricky intersection at one end of the town where a large building blocked the view of drivers approaching on the cross street. I wasn't worried—I had right-of-way. If anyone was behind the building, I was sure they'd check for traffic before venturing into the intersection.

I was WRONG! A green blur flashed into the intersection in front of me from behind the building. Before I could hit the brakes, I felt a sharp jolt and heard the sound of metal thudding against metal as my rented Volkswagen van slammed into the right side of a jeep. Someone inside the jeep screamed. Locked together like a "T," my Volkswagen shoved the jeep sideways across the intersection and tipped it onto the driver's side wheels. I thought it was about to roll over when it broke loose and coasted to a stop a few feet to my right.

After I calmed down, I got out and checked the soldiers in the jeep. Although they were shaken, no one was injured. They'd all worn their seatbelts—a decision that kept them from being thrown out of the jeep or tossed around inside of it.

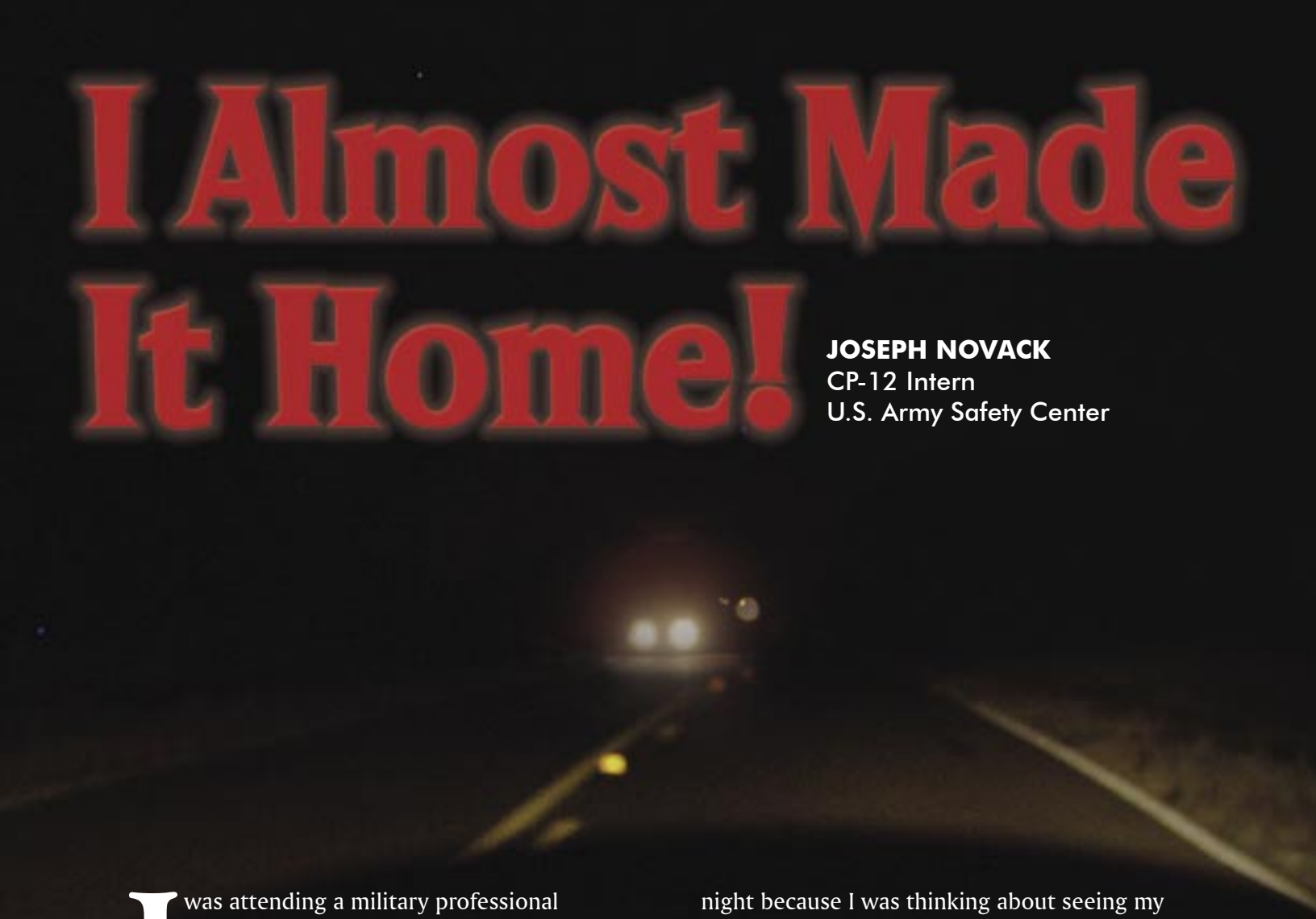
After the military police responded to the accident I got back into the van, which was still drivable. I realized how close my face was to the windshield and that my seatbelt and shoulder strap had probably saved me from a serious head injury.

I drove back to Kusel and thought about what had happened. I'd gotten my story after all—the hard way. What really mattered, however, was that everyone walked away safe and alive from this accident. Whether it was me in my Volkswagen or the soldiers in their tactical vehicle, seatbelts had made the difference.

Editor's Note: Although this accident occurred 20 years ago and the jeep is no longer in the Army inventory, the value of seatbelts continues in today's tactical vehicles, such as the HMMWV. What about you? Do you have a personal experience story where a seatbelt saved your life or protected you from serious injuries? If so, why not share that story with your fellow soldiers through this magazine? There are three ways you can do that. You can e-mail your story to countermeasure@safetycenter.army.mil, or fax it to us at (334) 255-3003. You can also send a letter to: U.S. Army Safety Center, Attn: Countermeasure, Bldg 4905, 5th Avenue, Fort Rucker, AL 36362-5363.

I Almost Made It Home!

JOSEPH NOVACK
CP-12 Intern
U.S. Army Safety Center



I was attending a military professional development course at Fort Bliss, Texas, and my wife, son, and daughter were more than 700 miles away. I missed them so much. Every time I called home my little boy and girl would ask me, "When are you coming home, Daddy?"

After several months, the course was drawing to an end. I called home the evening before graduation and my children asked me again, "When are you coming home, Daddy?" When I assured them that I was coming home soon I could hear them singing in the background, "Daddy's coming home … daddy's coming home!"

I didn't get much sleep that night. I spent a few hours socializing with my classmates, then spent an hour or so packing my car. I wanted to be ready to depart right after graduation. I had a restless night because I was thinking about seeing my family again.

I got out of bed at the crack of dawn; however, graduation was not scheduled until the afternoon. That morning was one of the longest I had ever experienced.

Finally, after what seemed like a lifetime, my classmates and I received our graduation certificates. It was a very professional ceremony and we were all proud of our accomplishments. But now that it was over, all I wanted to do was see Fort Bliss in my rearview mirror.

I was already tired and there were only a few hours of daylight left, so I planned to drive until dark and then check into a motel. Even so, every time I passed an exit I convinced myself that I could make it to the next town. After I had passed several

towns, I finally realized that it was 2 a.m. My eyelids felt like they had little weights attached to them, and I knew that I would have to stop soon. Despite my obvious fatigue, I convinced myself that checking into a motel to sleep for only a few hours would be a waste of money. Besides, I had driven 700 miles before without stopping, so it was no big deal. With my state of mind, I probably could have talked myself into anything.

I opened the window a little more, turned up the radio, took another caffeine pill, and kept going. This seemed to be working quite well, at least for a while. When I caught myself nodding off a few times, I pulled into a roadside rest stop. After spending a half-hour or so trying to get comfortable in the backseat, I gave up. At least my eyes had been closed for 30 minutes—I figured that had to count for something.

As I started driving, I again could hear the voices of my children saying, "Daddy's coming home!" I was only a few hours away now, and the sky was getting brighter. The closer I got to home, the more alert I felt. I guess my adrenaline was flowing. I kept thinking about kissing my wife and hugging my little munchkins.

I finally saw the exit sign to my hometown. I was so proud of myself for driving the whole way without stopping. My wife and kids wouldn't be expecting me until late that day, and I couldn't wait to get home and surprise them. My neck was sore from straining to keep my head up and I could feel a burning sensation in my eyes. My eyelids felt so heavy, but I only had a few more miles to go….

The next few seconds were very confusing. When my eyes closed and I opened them again, I saw that I was no longer on the road. My car had veered to the right, climbed a curb and ripped through a row of hedges. I was in the middle of someone's lawn, flying forward at a high rate of speed. There was a car parked in the driveway in front of me. I didn't have time to steer and my foot was glued to the accelerator. The last thing I remember was my hood crumpling like aluminum foil and coming directly toward the windshield—and me!

I don't know how I survived my accident that night. Weeks later, I trembled when I saw the crumpled ball of metal that had been my car. I thanked God that I was still alive. You see, a little boy and girl had been waiting for their daddy to come home.

I learned a valuable lesson in life that day. Although my intentions were good, I lacked good judgement. I should have considered the risks and the consequences. Did I really take time to think about the hazards facing me that night? Did I think about how serious they were? What if I had been killed or crippled? What would that have done to my wife and children? What if I had killed someone else that evening? What would that have done to someone else's family?

I had a plan to control those hazards—getting some sleep in a hotel. But did I follow through with my plan? No. The fifth step of risk management is to evaluate your actions to see if you made the right choices. Looking back, it's pretty clear that I didn't. I have since promised God, my family and myself to always think through the consequences of my actions. You see, you only have to be wrong once to change the lives of a lot of people.

If you would like to contact the author of this article, he may be reached via e-mail at joseph.novack@us.army.mil.

Corrections 0.5 Versus 5-Percent Bleach

In the March 2003 issue of *Countermeasure*, "Staying Healthy in the Desert," an error in one article was detected by medical personnel throughout the Army. In the story "Chemical Agents: Battlefield Foe, Lethal Enemy," treatment procedures for exposure to the nerve agents tabun, sarin, soman, mustard, VX, and blister agent cite washing the skin and clothing with a 5-percent liquid household bleach solution. The correct percentage is 0.5 percent, as bleach at a 5-percent concentration (liquid bleach straight from the bottle) is toxic and could cause serious harm to the skin. Updated doctrine recommends the following three options for treatment of skin exposed to nerve and chemical agents, beginning with the most preferred method: (1) washing the affected area with copious amounts of soap and water; (2) use of the M291 skin decontamination kit (for small areas of skin only); and (3) the 0.5-percent liquid household bleach solution.

For more information on the treatment of nerve and chemical agent exposure, see Field Manual (FM) 8-285, *Treatment of Chemical Casualties*, FM 8-10-7, *Health Service Support in an NBC Environment*, and FM 3-5, *NBC Contamination*.

POC: Julie Shelley, U.S. Army Safety Center, (334) 255-1218, DSN 558-1218, e-mail julie.shelley@us.army.mil

Lined and Unlined M2 Barrel Numbers

In the March 2003 issue of *Countermeasure*, "Is Your M2 Machine Gun Ready for Battle?" we had an error that indicated two part numbers for the lined barrel—6528269 and 7266131. In fact, the part number for the lined barrel is 7266131 and 6528269 for the unlined barrel.

PLGR Problems Discovered

Currently, there are problems with Army units purchasing commercial off-the-shelf (COTS) items and then "mixing and matching" these items with other Army-issue and COTS equipment. The latest problem was discovered when the Army and Navy tested some COTS items and found that commercial position locating global reporting systems (PLGR IIs or V-PLGRs), when interfaced with the Viper/Vector Laser Range Finder (LRF), have the potential for fratricide due to software issues.

The potential for an accident occurs when the commercial PLGR II or V-PLGR is used with the Viper/Vector LRF in the "hasty" or "deliberate" mode. In the "hasty" LRF mode, it is possible for an invalid range (i.e., "O" range—the operator's location) to be stored as the target location without notifying the operator. This invalid range and target data will be stored even when the lens cap is on. Also, if the target is closer than the range gate that the Viper/Vector LRF is set to, then a "O" range will be returned and the operator's present position will be set as the target data. This problem also will occur if the target is beyond the range of the system. Using these commercial PLGRs in the "deliberate" LRF mode also will allow operators to save a zero range position and, as a result, call in munitions on themselves.

The fundamental problem is that neither the commercial PLGR II nor V-PLGR checks the validity flag sent by the Viper/Vector LRF. Despite the Viper/Vector LRF sending the validity flag, the commercial PLGR II and V-PLGR check the result only when they are in the "targeting" LRF mode. In any other LRF mode, the commercial PLGR II and V-PLGR assume the range is valid and saves the operator's location as the target location.

While the PLGR II and V-PLGR are not currently being issued by the Army, units could have purchased them commercially and be using them with the Viper/Vector LRF. Only when the commercial PLGR II or V-PLGR is used with the Viper/Vector LRF does this danger exist.

The U.S. Army Communications Electronics Command (CECOM) recently issued a Safety of Use Message (SOUM) 2003-002, subject: *Viper Laser Target Locator System*. This message provides guidance for those units that have obtained commercial Viper/Vector LRF systems. The complete message is available on the Army Electronic Product Support Bulletin Board via their Internet Web site at http://aeps.ria.army.mil.

POC for M2 Barrels and PLGR Problems: Mr. Don Wren, Ground Systems and Accident Investigation Division, (334) 255-2744, DSN 558-2744, e-mail don.wren@safetycenter.army.mil

POV

Class A

■ A soldier was driving a friend's Toyota RAV4 northbound in the left lane of an interstate when the vehicle veered off the roadway into the center median and skidded sideways. The RAV4 then entered the left-hand northbound lane, rolled over onto its top, skidded, and then rolled over onto its left side, where it is believed that the driver was ejected from the vehicle. The vehicle then re-entered the center median, struck the driver, and slid on its right side until finally coming to rest facing east. The driver had been traveling at a high rate of speed and had three passengers in the vehicle. They received minor injuries, but were able to free themselves from the vehicle after it stopped rolling. All three passengers attempted to perform lifesaving measures on the driver, but were unsuccessful.

■ A soldier was killed when his vehicle was struck head-on as he attempted to pass other traffic. Two passengers in the vehicle were injured and had to be hospitalized.

■ A soldier was fatally injured when her vehicle ran off the road and struck a tree. Another soldier riding with her received minor injuries. The passenger was wearing her seatbelt, but the driver wasn't.

■ A soldier was killed when he lost control of his vehicle while attempting to pass several tractor trailers and struck an oncoming vehicle head-on.

■ A soldier lost control of his vehicle while negotiating a traffic circle and struck a steel beam. The vehicle exploded, fatally injuring the soldier.

Class C

■ A soldier was driving when he came across icy road conditions. He slowed to approximately 45 mph, but farther down the road the vehicle began an uncontrolled slide to the left. The driver unsuccessfully attempted to correct for the slide, but his vehicle struck an embankment and overturned.

Personnel Injury

Class A

■ A member of the Honor Guard was riding his horse as part of morning exercise when he was thrown, resulting in fatal head injuries.

Class B

■ A training instructor fell from a boat as it was turning and contacted the propeller, resulting in a permanent partial disability injury to his leg.

Class C

■ A soldier was attempting to store a utility belt in his gun cabinet when his 9mm Glock pistol slid from the top shelf. As the pistol was falling the soldier attempted to catch it with both hands, but he touched the Glock's trigger and caused it to fire, sending a bullet through his left hand. The soldier's mistake was leaving a loaded weapon stored in his gun cabinet.

■ A soldier was playing basketball when he tore his anterior cruciate ligament (ACL). He was running on the basketball court and had not made contact with any other players.

AMV

Class A

■ Two passengers were thrown from their vehicle when it overturned while traveling in a convoy. One soldier later died from his injuries, while the other was seriously injured and had to be hospitalized for 17 days.

■ One soldier was killed and another injured when their vehicle departed the road in dust conditions and struck another vehicle.

Class B

■ A soldier was dismounting a HMMWV when he caught his right-hand middle finger on the sling (load) ring, resulting in the finger being amputated at the knuckle.

■ A soldier was attempting to drive an AMV off a trailer when the vehicle moved forward and pinned another soldier against the trailer's gooseneck. The pinned soldier had one leg amputated and could lose the other leg.

ROLLOVER!

CREW DRILL

WARNING

Extreme caution shall be taken when transporting personnel. Rollover protection and seatbelts are available for the crew area only and are not provided in the troop/cargo area. Failure to use basic safe driving techniques and skills may result in injury or death to personnel and damage to equipment. Vehicle speed must be reduced consistent with weather and road or terrain conditions. Obstacles such as stumps and boulders must be avoided.

TASK STEPS & PERFORMANCE MEASURES

Rollover procedures

The driver—

- Releases the accelerator.
- Keeps his hands on the wheel and braces for an impact.
- Yells, "Rollover."

NOTE: The driver and the vehicle commander should be wearing seatbelts.

- If time permits, shuts down the engine.

The gunner—

- Drops down from the hatch into the vehicle.
- Holds onto a stationary object.
- Yells, "Rollover."

NOTE: If possible, the vehicle commander grabs the gunner's legs to assist him into the vehicle.

After the rollover has been completed

The driver—

- Shuts down the engine.
- Activates the fixed fire extinguisher, if available.
- Disconnects the microphone plug, if available.
- Checks for injuries and seeks medical attention, as needed.
- Exits the vehicle.
- Checks for fuel spills and attempts to contain them, if possible.

The vehicle commander—

- Checks the crew for injuries and seeks medical attention, as needed.
- Disconnects the microphone plug, if available.
- Exits the vehicle with the crew.
- Accounts for personnel and sensitive items.
- Checks for fuel spills and attempts to contain them, if possible.
- Reports to higher headquarters.
- Seeks recovery of assets.

The gunner—

- Clears the weapons.
- Checks the weapons' serviceability.
- Disconnects the microphone plug, if available.
- Exits the vehicle and assists the driver.

Procedure taken from ARTEP-19-100-10-DRILL

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